AMENDMENTS TO THE CLAIMS

Cancel claim 1 without prejudice. Please accept amended claims 3, 6, 7, 11, 14 and 15 as follows:

1. (Cancelled)

2. (Original) A method for determining a number of balls in a projection space comprising the steps of:

determining a projection of a portion of a ball grid array;

determining at least one local maximum of the projection space for a given threshold;

determining a distance between adjacent maximum;

determining an inter-peak histogram of the distances;

determining an inter-ball distance for each pair of adjacent balls that has the maximum value of the inter-peak distance histogram corresponding to the pair of adjacent balls;

determining a position of a first ball and a position of a last ball;

verifying the position of the first ball and the position of the last ball based on a general inter-ball distance; and

determining the number of balls.

3. (Currently Amended) The method of claim 2, wherein the step of determining [[a]] the projection further comprises the step of projecting a [[row/column]] row or column of an image of the [[ball image]] balls in a direction, wherein the direction is one of

[[horizontally and vertically]] horizontal and vertical.

4. (Original) The method of claim 2, wherein an inter-peak distance bin width is a

tolerance of the general inter-ball distance.

5. (Original) The method of claim 2, wherein the number of balls is determined according

to:

$$N = \frac{\text{distance between the first and the last ball}}{\text{inter - ball distance}} + 1$$

where N is the number of balls and the inter-ball distance is determined according to a

maximum value of the inter-peak distance histogram.

6. (Currently Amended) The method of claim 2, wherein the given threshold is

[[determined]] an adaptive threshold.

7. (Currently Amended) The method of claim 6, further comprising [[wherein]]

determining the adaptive threshold, [[comprises]] comprising the steps of:

determining [[the]] a preliminary number of balls in the projection space for one or

more [[given]] threshold values in a threshold searching range based on the general inter-

ball distance of ball grid array components;

determining a histogram for the preliminary number of balls;

determining a threshold range comprising a plurality of threshold values, wherein

each threshold value corresponds to a maximum number of balls at the threshold value;

and

    setting the <u>adaptive</u> threshold to one of a mean threshold value and a median threshold value of the threshold range.

8. (Original) The method of claim 7, wherein the histogram shows a maximum frequency of the number of balls.

9. (Original) The method of claim 2, wherein the general inter-ball distance is an average of the distances between each pair of adjacent balls.

10. (Original) A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for determining a number of balls in a projection space, the method steps comprising:

    determining a projection of a portion of a ball grid array;

    determining at least one local maximum of the projection space for a given threshold;

    determining a distance between adjacent maximum;

    determining an inter-peak histogram of the distances;

    determining an inter-ball distance for each pair of adjacent balls that has the maximum value of the inter-peak distance histogram corresponding to the pair of adjacent balls;

    determining a position of a first ball and a position of a last ball;

    verifying the position of the first ball and the position of the last ball based on a

general inter-ball distance; and

determining the number of balls.

11. (Currently Amended) The method of claim 10, wherein the step of determining [[a]] the projection further comprises the step of projecting a [[row/column]] row or column of an image of the [[ball image]] balls in a direction, wherein the direction is one of [[horizontally and vertically]] horizontal and vertical.

12. (Original) The method of claim 10, wherein an inter-peak distance bin width is a tolerance of the general inter-ball distance.

13. (Original) The method of claim 10, wherein the number of balls is determined according to:

$$N = \frac{\text{distance between the first and the last ball}}{\text{inter - ball distance}} + 1$$

where N is the number of balls and the inter-ball distance is determined according to a maximum value of the inter-peak distance histogram.

14. (Currently Amended) The method of claim 10, wherein the given threshold is [[determined]] an adaptive threshold.

15. (Currently Amended) The method of claim 14, further comprising [[wherein]] determining the adaptive threshold, [[comprises]] comprising the steps of:

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determining [[the]] a preliminary number of balls in the projection space for one or more [[given]] threshold values in a threshold searching range based on the general inter-ball distance of ball grid array components;

determining a histogram for the preliminary number of balls;

determining a threshold range comprising a plurality of threshold values, wherein each threshold value corresponds to a maximum number of balls at the threshold value; and

setting the adaptive threshold to one of a mean threshold value and a median threshold value of the threshold range.

16. (Original) The method of claim 15, wherein the histogram shows a maximum frequency of the number of balls.

17. (Original) The method of claim 10, wherein the general inter-ball distance is an average of the distances between each pair of adjacent balls.